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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,015	12/31/2003	Eric W. McFarland	500451-1005	9328

7590 12/02/2004

Michael A. O'Neil
Michael A. O'Neil, P.C.
Suite 820
5949 Sherry Lane
Dallas, TX 75225

EXAMINER	
DIAMOND, ALAN D	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/750,015	MCFARLAND, ERIC W.
	Examiner	Art Unit
	Alan Diamond	1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *97-107,109-125,127 and 128* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *103,104,106,111-125 and 128* is/are allowed.

6)☒ Claim(s) *97-102,105,107,109 and 110* is/are rejected.

7)☒ Claim(s) *127* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Comments

1. The objections to the disclosure for minor informalities have been overcome by Applicant's amendment to the specification.

2. The objection to claim 112 for informalities has been overcome by Applicant's amendment of the claim.

3. The Examiner acknowledges that claims 108 and 126 have been cancelled.

4. The terminal disclaimers filed 11/11/2004 have overcome the obviousness-type double patenting rejection over U.S. Patent 6,774,300 and the provisional obviousness-type double patenting rejection over Serial No. 10/645,747.

Double Patenting

5. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

6. Claim 127 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 125. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

7. Claims 97-102, 105, 107, 109, and 110 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-6, 9, and 11-13 of prior U.S. Patent No. 6,774,300. This is a double patenting rejection.

Instant claims 97-102, 105, 107, and 109 recite that the conducting layer comprises and ultra-thin metal film, and that the conducting layer provides ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer. In claims 1-6, 9, 11, and 12 of said patent, the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer. However, in the instant claims, if the conducting layer provides ballistic transport, then the ultra-thin metal film must inherently be for providing ballistic transport, as in patented claims 1-6, 9, 11, and 12. If the instant ultra-thin metal film did not provide ballistic transport between the light energy conversion layer and the charge separation layer, then the instant conducting layer could not provide this ballistic transport. Likewise, if the ultra-thin metal film in the claims of said patent is for providing the ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer, then the conducting layer in the claims of said patent must inherently provide ballistic transport. The conducting layer in the claims of said patent is between the light energy conversion layer and the charge separation layer and must provide ballistic transport if the ultra-thin metal film of the conducting layer provides ballistic transport. Of course, the instant conducting layer could comprise other layers, but so could the conducting layer in the claims of said patent. Accordingly, although there is a slight difference in wording between instant

claims 97-102, 105, 107, and 109 and patented claims 1-6, 9, 11, and 12, based on inherency, there is no difference is scope, i.e., the claims encompass the same subject matter.

The Examiner acknowledges that instant claim 110 is slightly different in wording from claim 13. Claim 110 recites, at lines 4-5 "a two sided conducting layer comprising an ultra-thin metal film and having the light energy conversion layer secured to a first side thereof" and also recites at lines 8-9 that "the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer". However, as far as the Examiner is concerned, there is no difference between the ultra-thin metal film at lines 4 and 8 of said claim 110. In said claim 13, "the conducting layer comprises an ultra-thin metal film for providing ballistic transport of charge carriers from the light energy conversion layer to the charge separation layer" just as at lines 8-9 of said claim 110. Since there is no difference between the ultra-thin metal film at lines 4 and 8 of said claim 110, then there is no difference between claims 110 and 13.

Response to Arguments

8. Applicant's arguments filed November 11, 2004 have been fully considered but they are not persuasive. Applicant argues that the rejections for double patenting have been overcome by the terminal disclaimers filed November 11, 2004. However, this argument is not deemed to be persuasive because a terminal disclaimer cannot overcome a 35 USC 101 double patenting rejection for claiming the same invention.

Allowable Subject Matter

9. Claims 103, 104, 106, 111-125, and 128 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Skotheim (U.S. Patent 4,442,185) is the closest prior art. Instant claims 111-123, 125, and 128 require that the conducting layer, which is an ultra-thin metal film, and the charge separation layer define a Schottky barrier; and that said conducting layer provides ballistic transport of charge carriers from the light conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer. Skotheim does not teach or suggest that said ultra-thin metal film conducting layer forms a Schottky barrier with a charge separation layer. Skotheim teaches an ultra-thin platinum film between n-type layer (131) (i.e., the light energy conversion layer) and highly conductive layer (134) (see Figure 13; and the paragraph bridging cols. 15 and 16). The platinum film maybe could form an n-barrier with highly conductive layer (134), which is actually a blend of a highly conductive polymer and a solid polymer electrolyte (col. 15, lines 33-50), but does not form such a barrier. Said platinum layer does not form a Schottky barrier with p-type layer (132), which is the charge separation layer. Even if n-type layer (131) was the charge separation layer, there would be no Schottky barrier between the n-type layer and the platinum layer. Skotheim teaches that there may be an additional layer of platinum, chromium or other metal (col. 16, lines 30-36), but there is nothing that leads a skilled artisan to the claimed invention.

Skotheim also does not teach or suggest a conductive layer and a charge separation layer define a metal-insulator-metal junction, as per instant claim 103.

Instant claim 104 is distinguished from Skotheim since it requires that the charge separation layer comprises a semiconductor of a type, and the device further includes a semiconductor of the opposite type positioned between the charge separation layer and the conducting layer to provide an increased barrier height and photovoltage. Instant claims 106 and 124 are distinguished from Skotheim since they require that the charge separation layer comprises an insulator/semiconductor multi-layer.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan Diamond
Primary Examiner
Art Unit 1753

Alan Diamond
November 22, 2004